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WILLOW CREEK BASIN POTENTIAL STORAGE SITES

PROJECT: LOCAL CONCERNS INVENTORY

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Prepared for

Alberta Environment Planning Division

January, 1986

WILLOW CREEK BASIN POTENTIAL STORAGE SITES
PROJECT: LOCAL CONCERNS INVENTORY

by
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and
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Prepared for
Alberta Environment Planning Division

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INTRODUCTION

The Willow Creek Basin has historically experienced occasional spring flooding and more regular late summer and winter water shortages. To stabilize water supplies within the basin, the Chain Lakes Reservoir, was developed in the upper end of the Willow Creek drainage. Completed in 1962, the reservoir's 12,000 acre-foot capacity adequately met the recreational, municipal and agricultural demands placed on it. However, since that time, water demands have grown significantly, and Willow Creek has once again become an unreliable water source. In fact, the creek experienced a freeze-up during the winter of 1982 and near dry conditions during the summer drought of 1984 and 1985. With future increases in water demands from municipal and irrigation development being considered for the area, a reliable water supply becomes even more important.

To rectify this problem, Alberta Environment is now investigating the feasibility of constructing one or more additional water storage sites within the Willow Creek Basin. When studies were first initiated in 1982, 48 potential sites were identified on 1:50,000 scale NTS maps. Based on hydrological, geological topographical and land use issues, only six of the 48 sites were selected for detailed evaluation. Currently, three of those six are being considered as potential sites, in addition to a fourth site which was recently proposed by the Willow Creek advisory committee (July 1985).

LGL Limited was retained by Alberta Environment to develop a questionnaire covering matters involving local concerns and to undertake interviews of potentially affected landowners based upon the questionnaire. This report identifies and summarizes the results of these interviews and offers some discussion of the information collected.

2. STUDY OBJECTIVES

The primary objective of the study was to collect sufficient information through a series of personal interviews with potentially affected landowners to identify the level and nature of local concerns related to the proposed development of additional water storage sites within the Willow Creek Basin. This objective was fulfilled through the completion of interviews with twenty-two of twenty-five potentially affected landowners in early November of 1985. Those not interviewed were either not available or expressed a desire not to be interviewed.

3. STUDY AREA

As previously discussed, four sites within the Willow Creek Basin are currently being considered for water storage. For the purposes of this study, these sites are referred to as:

1. Willow Creek
2. Pine Coulee
3. Kuntz Creek/Willow Creek
4. Pine Coulee/Willow Creek

These sites are situated on Willow and Pine Creeks along the eastern perimeter of the Porcupine Hills (Figure 1).

Site No. 1, Willow Creek near Claresholm, is located in Sections 12, 13, 14, 15, 22, 23, 24 and 27, Township 13, Range 28, West of the 4th Meridian (Figure 2). It is situated on the eastern edge of the Porcupine Hills and falls within the Mixed Grass Ecoregion of Alberta. This potential reservoir site is characterized by steep valley walls primarily along its western edge, extensive bedrock outcrops, and a forest and shrub-dominated valley bottom. Well developed terraces occur along both flanks of the creek.

Site No. 2, Pine Coulee, is located in Section 34, Township 13, Range 28, West of the 4th Meridian; Sections 2, 3, 10, 15, 22, 28, and 33, Township 14, Range 28, West of the 4th Meridian; and Section 3, Township 14, Range 28, West of the 4th Meridian (Figure 3). Also falling within the Mixed Grass Ecoregion, Pine Coulee is a broad treeless valley through which an intermittent creek flows. A number of tributaries join the creek along the length of the proposed reservoir site and intermittent saline ponds occur on the valley floor. Most of the floor of Pine Coulee has been broken and is currently used for pasture. Colluvial activity in Pine Coulee has resulted in gently sloped valley walls. The few bedrock outcrops which do occur are generally restricted to the east side of the coulee.

Site No. 3, Willow Creek near Lane Creek/Kuntz Creek, is located in Sections 1, 2, and 11, Township 14, Range 30, West of the 4th Meridian and Sections 1, 2, 11, and 12, Township 14, Range 1, West of the 5th Meridian (Figure 4). Situated approximately 20 km upstream of Pine Coulee, this site consists of a narrow valley flanked by rugged foothills topography. Within the defined reservoir area, Kuntz Creek flows into Willow Creek from the north and Johnson Creek and McIntosh Creek from the south. Some well developed terraces occur, primarily along the north side of Willow Creek. Falling within the Fescue Grassland Ecoregion, grasslands characterize the north bank whereas discontinuous mixed forests characterize the south bank. Bedrock outcrops are limited and are primarily exposed in deeply incised valley walls.

Site No. 4, near the Willow Creek-Pine Coulee confluence, involves the impoundment of both Pine Coulee and Willow Creek (Figure 3-5). Under this scenario, the Pine Coulee reservoir, as described for Site 2, would be extended south to Willow Creek. Additional flooding on Willow Creek would occur in Sections 27, 28, 32, and 33, Township 13, Range 28, West of the 4th Meridian. This portion of Willow Creek is similar biophysically to Site 1, possessing forest and shrub dominated valley floor communities, steep valley walls and adjacent well developed, pasture or grass dominated terrains.

Figure 3-1. Location of Study Area.

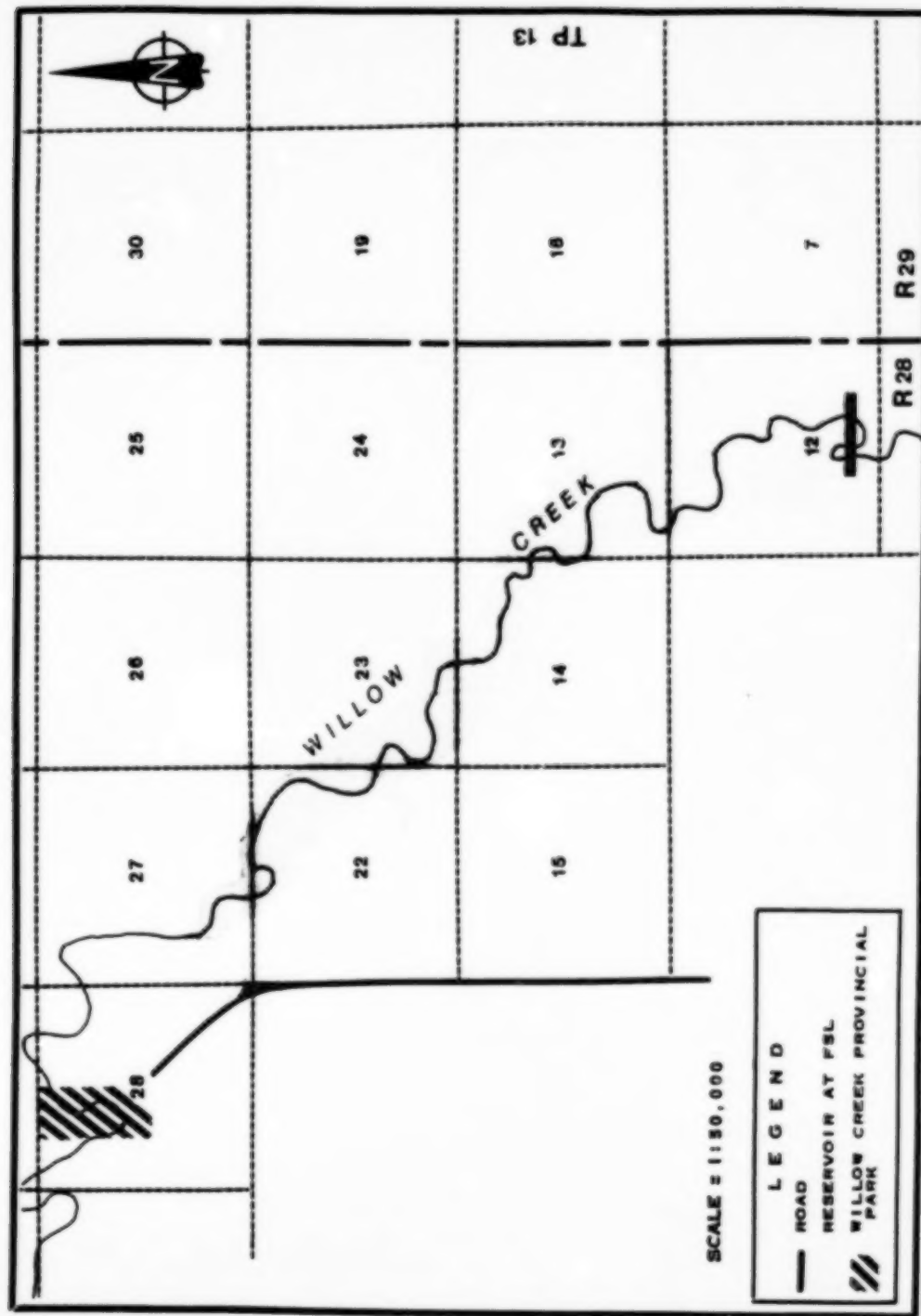


Figure 3-2. SITE NO. 3, SHOWING EXTENT OF RESERVOIR AT FULL SUPPLY LEVEL (after K'lohn Leonoff Ltd. 1984) SCALE = 1:50,000

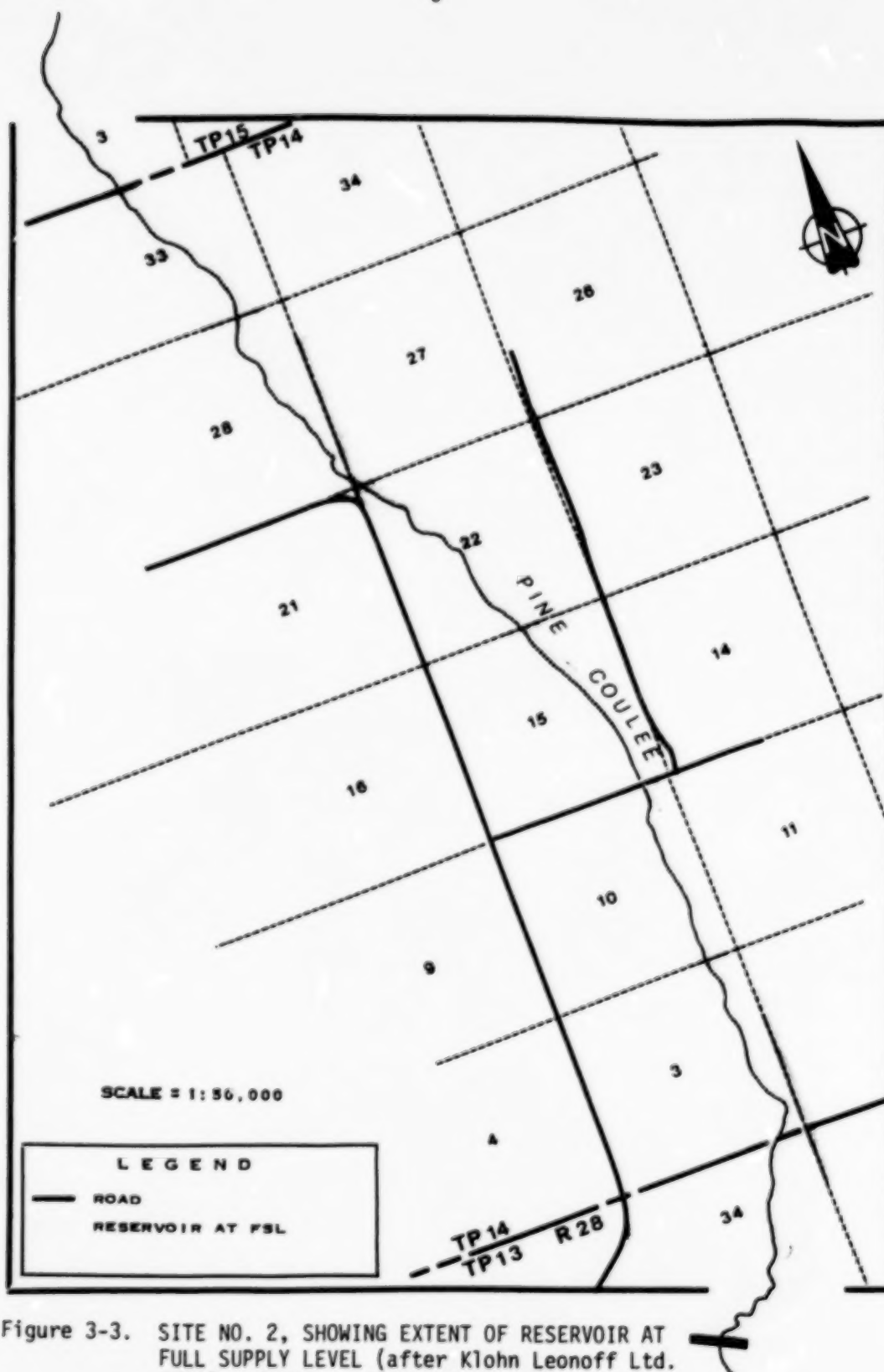


Figure 3-3. SITE NO. 2, SHOWING EXTENT OF RESERVOIR AT FULL SUPPLY LEVEL (after Klohn Leonoff Ltd. 1984) SCALE = 1:50,000

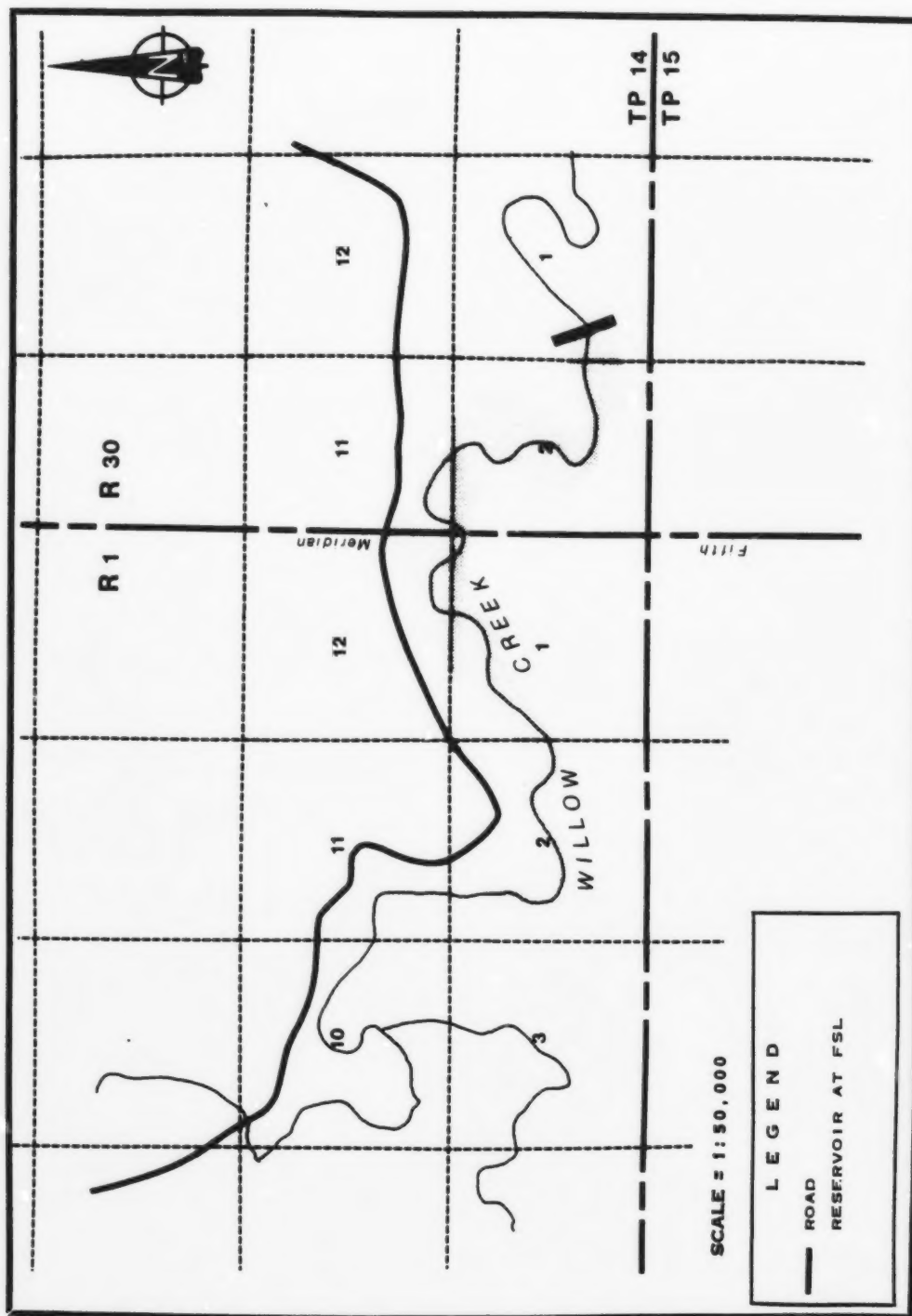


Figure 3-4 SITE NO. 3, SHOWING EXTENT OF RESERVOIR AT FULL SUPPLY LEVEL (after Klohn Leonoff Ltd. 1984)

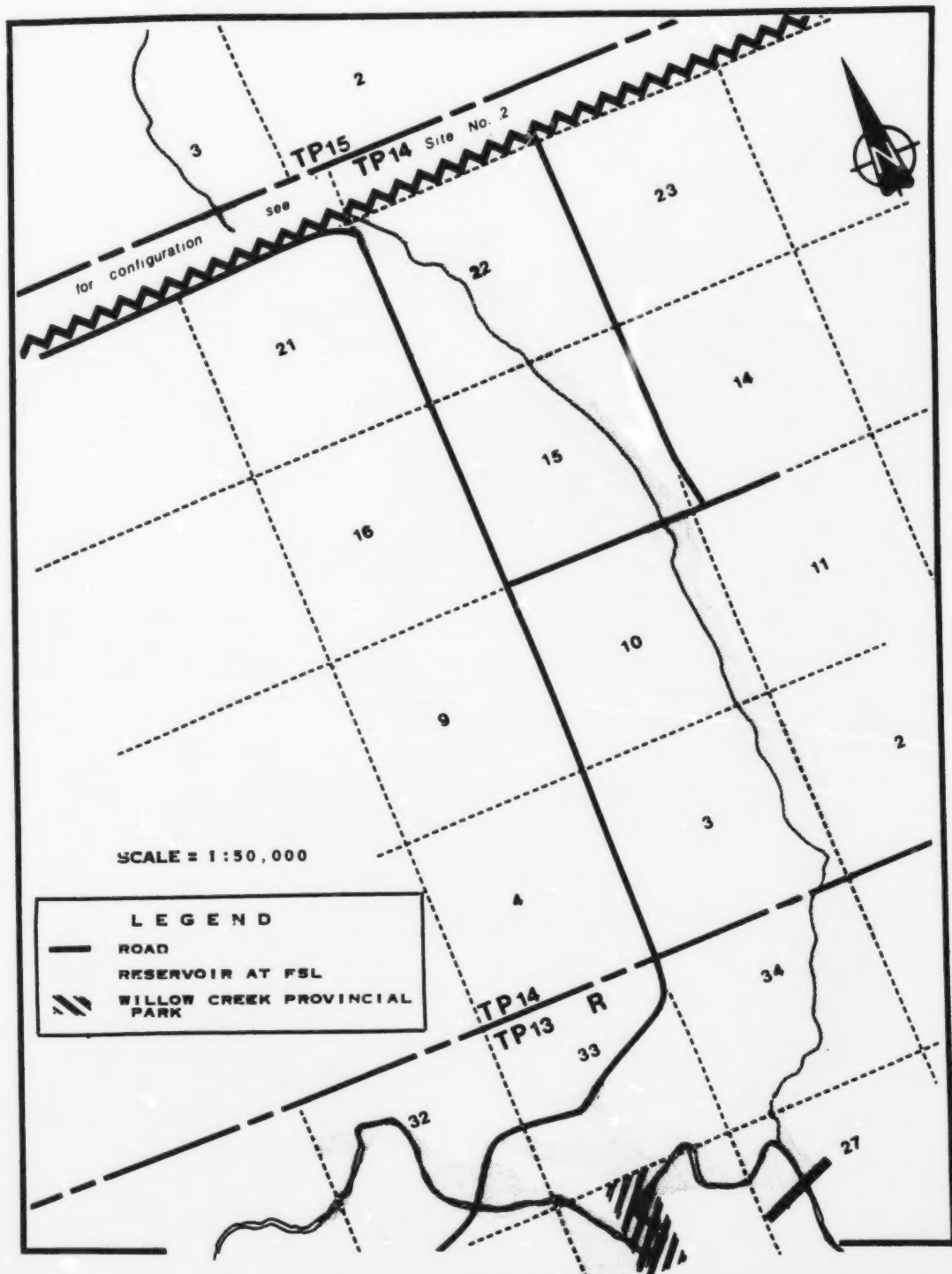


Figure 3-5. SITE NO. 2, SHOWING EXTENT OF RESERVOIR AT FULL SUPPLY LEVEL
(adapted from Klohn Leonoff Ltd. 1984)

4. METHODS

After consultation with representatives of Alberta Environment, a list of potential candidates for interviews was developed. The basis for landowner inclusion on the interview list involved ownership or lease agreements of land directly involved with development of any of the selected four sites. Interviews were based upon a questionnaire developed by LGL Ltd. in conjunction with Alberta Environment. The scheduling of interviews was arranged in late October, 1985 and early November, 1985, and confirmed individually one day in advance of each interview.

A single interviewer (the author of this report) conducted the interviews in a face to face conversation with the identified landowners usually at the landowner's residence. In most instances the interviewer completed the questionnaire by writing out the landowner's responses, however in one instance where five landowners were simultaneously present, they filled out the questionnaires with the guidance of the interviewer. The average duration of the interviews was approximately one hour and forty-five minutes.

5.0 INTERPRETATION OF INFORMATION COLLECTED

The questionnaire was divided into eight (8) sections and a summary of the data collected is included in Appendix 1. Following are a series of discussions on the information collected for each of the sections of the questionnaire.

5.1 FAMILY BACKGROUND

5.1.1 Occupancy

Generally, the duration of occupancy reported by interviewed landowners was consistent with most rural communities. Twenty-one of twenty-two (95%) had lived in the area for greater than ten years and nineteen of twenty-two (86%) had been at their current homestead for more than ten years.

The number of families dependent on each farm operation ranged from one to three per landholding with the exception of the Hutterite Colony of Parkland. Twelve of twenty-two (55%) interviewed were one family operations, five of twenty-two (23%) were two family operations and three of twenty-two (14%) were three family operations. Nineteen of twenty-two (86%) indicated that only their own families lived on the property. Table 1 presents occupancy information on a site by site basis.

5.1.2 Local Services

Utilization of local services was largely dependent on the services available in Claresholm. Shopping for everyday needs, major repairs and major purchases is done in Claresholm by twenty of twenty-two, (91%) landowners interviewed. In terms of social activities, twelve of twenty-two (55%) reported that they socialized in either Claresholm or Stavely, or both. Table 2 summarizes information on the utilization of local services.

5.2 PROPOSED PROJECT CONCERNS

5.2.1 Project Purpose and Preferences

In identifying a major purpose for the Willow Creek Project, a majority of respondents chose more than one purpose. Irrigation was identified in eighteen of twenty-two (82%) questionnaires with municipal uses identified in seventeen of twenty-two (77%). Use of a reservoir site for recreation was identified on eight questionnaires (36%).

Familiarity with the potential storage sites was high, with twenty-one of twenty-two (95%) not requiring identification of the sites under consideration.

Site preference was widely varied. Site No. 1 was preferred by three of twenty-two (14%) either because of its on-stream storage location or its proximity to Claresholm. Site No. 2 was preferred by eight of twenty-two (36%) because it disrupted the fewest people, had few environmental concerns or involved the least valuable land. No one indicated a preference for Site No. 3. Site No. 4 was preferred by seven of twenty-two (32%) interviewed because of its on-stream location, better storage capacity and disruption of fewest people. Three respondents indicated no preference.

In terms of non-preference, seven of twenty-two (32%) indicated strong disfavour with Site No. 1 because of personal disruption or loss of good land. Site No. 2 found disfavour with four of twenty-two (18%) either because of its off-stream location (and potential for poor water quality) or personal disruption. Site No. 3 was found unacceptable by eight respondents (36%) either for personal reasons or environmental considerations. Site No. 4 found disfavour with one landowner (5%) because of personal disruption.

Table 1. Occupancy Information

RESIDING AT CURRENT SITE	SITE 1	SITE 2	SITE 3	SITE 4
No. of Landowners Interviewed	8	14	0	14
Occupancy 0-5 yrs	0	1	N/I	1
Occupancy 5-10 yrs	1	2	N/I	2
Occupancy 10-25 yrs	3	7	N/I	7
Occupancy >25 yrs	4	4	N/I	4
RESIDENCY IN AREA				
No. of Landowners Interviewed	8	14	0	14
Occupancy 0-5 yrs	0	0	N/I	0
Occupancy 5-10 yrs	0	1	N/I	1
Occupancy 10-25 yrs	0	2	N/I	2
Occupancy >25 yrs	8	11	N/I	11

N/I - No Information.

Table 2. Use of Local Services

	SITE 1	SITE 2	SITE 3	SITE 4
No. of Landowners Interviewed	8	14	0	14
<u>Everyday Shopping in*</u>				
Claresholm	8	12	N/I	12
Stavely	0	6	N/I	6
Nanton	0	4	N/I	4
Calgary	0	1	N/I	1
<u>Major repairs or purchases in *</u>				
Claresholm	8	10	N/I	10
Stavely	0	1	N/I	1
Nanton	1	4	N/I	4
Calgary	1	4	N/I	4
Lethbridge	1	3	N/I	3
<u>Social Activities in*</u>				
Claresholm	7	4	N/I	4
Stavely	2	8	N/I	8
Nanton	1	3	N/I	3

* - No. of respondents by reservoir site.

N/I - No Information.

Table 3 summarizes the preference of the landowners on a site by site basis.

5.2.2 Project Benefits and Effects

In identifying the direct effects of a project at each site on the involved landowners, the most common response was the loss of productive land. For Site No. 1, five affected landowners indicated a loss of their homes as well as productive land and four other landowners indicated that the major effect would be the presence of a reliable water source. For Site No. 2, fourteen affected landowners indicated a loss of productive land with two of these indicating a loss of their homes. No information was collected for Site No. 3. For Site No. 4, fourteen landowners indicated a loss of productive land, with three of these indicating a loss of their homes.

In terms of the effect of any potential site being developed on their relationships with friends and neighbours five of twenty-two (23%) commented on the necessity to relocate, nine (40%) indicated no effects, four (18%) were concerned about hard feelings and four (18%) were concerned about the effect of Site No. 3 on J. Streeter. As to daily activities, eleven of twenty-two (50%) landowners expressed concern about maintenance of existing access.

Among responses to questions on how to answer these concerns and alter the effect of the proposed project, six respondents (27%) indicated that the implementation of a reasonable compensation program would help. Six respondents indicated that choice of a site other than the one affecting them would help and four respondents (18%) indicated that access to irrigation licenses would help.

Fifteen of twenty-two (68%) affected landowners stated that the municipal users (Claresholm, Stavely, Granum) would benefit most from the project, fourteen (64%) indicated that irrigators would benefit and four (18%) responded that land developers would benefit. In terms of direct benefit for affected landowners ten (45%) indicated that there would be a direct benefit with seven of those ten identifying irrigation as the benefit.

The majority of the interviewed landowners (eighteen of twenty-two or 82%) said that there has been a direct affect on current operations and future plans, caused by the discussion of a potential storage site. Ten respondents indicated that they have placed all their future plans on hold until such time as a decision is reached on the location and development of the reservoir.

5.3 LOCAL CONCERNS

5.3.1 Farming Operations

The types of farm operations reported by the affected landowners were ten mixed farming operations, eight cattle ranches, two cow/calf operations and two hog operations. Size of land holdings varied from 160 acres to 9000+ acres, with twenty-one reporting holdings in deeded land, four in private leases and nine in governmental leases.

Project affects on individual farm operations included twelve responses on loss of grazing capability, four on loss of cow/calf operations, six responses on loss of crops, six responses on loss of feed production and four responses on loss of operating wells. Nine respondents indicated a loss of access that would affect farming operations.

In terms of potential uses of reservoir water by existing farm operations, twelve (55%) indicated that water could be used for stock watering irrigation and two (9%) indicated potential domestic uses.

Table 3. Site Preference by Affected Landowners.

	SITE 1	SITE 2	SITE 3	SITE 4
Preferred By:				
Site 1 Landowners	1	3	0	3
Site 2 Landowners*	3	6	0	3
Site 3 Landowners	N/I	N/I	N/I	N/I
Site 4 Landowners*	3	6	0	3
TOTALS	<u>7</u>	<u>15</u>	<u>0</u>	<u>9</u>
Not Wanted By:				
Site 1 Landowners	7	0	1	0
Site 2 Landowners*	1	3	8	1
Site 3 Landowners	N/I	N/I	N/I	N/I
Site 4 Landowners*	1	3	8	1
TOTALS	<u>9</u>	<u>6</u>	<u>17</u>	<u>2</u>

* Site 2 and Site 4 Landowners are the same.

N/I No Information .

Table 4 summarizes these effects and indicates the losses anticipated for farm improvements and buildings.

5.4 PROJECT START-UP AND RESERVOIR USE

5.4.1 Project Construction

Sixteen to twenty-two (73%) responses indicated a preference of construction to begin as soon as possible and four (18%) indicated a preference of construction to never start. Seventeen responses (77%) indicated no particular preference to construction occurring during a specific season, while one response requested that construction not occur during the summer.

5.4.2 Recreational Development

Nine of twenty-two (41%) responses indicated that recreational development could occur without jeopardizing the function of the reservoir, and seven (32%) additional responses agreed with this idea subject to proper constraints on such development. Five responses (23%) were against recreational development on the reservoir.

Major problems that respondents anticipated with recreational development were: landowner/visitor conflicts, eighteen of twenty-two (82%), sewage disposal, fifteen of twenty-two (68%), increased traffic, fourteen of twenty-two (64%), water use conflicts, thirteen of twenty-two (59%), increased taxes, nine of twenty-two (41%), water quality, eight of twenty-two (36%) and wildlife conflicts, seven of twenty-two (32%).

Potential benefits anticipated for recreational development along the reservoir were: improved recreational benefits for local people, seventeen of twenty-two (73%), increased tourist spending, twelve of twenty-two (55%), increased local employment, twelve of twenty-two (55%), new residents, nine of twenty-two (41%) and increased tax base, eight of twenty-two (36%).

Control or ownership of land around the reservoir was a divided issue with eight respondents preferring ownership by private individuals, and four preferring ownership by the provincial government. Nine other responses favoured a combination of the two.

Information on the construction schedule and reservoir use is summarized in Table 5.

5.5 HISTORICAL RESOURCES

The general knowledge of the presence and variety of historical resources in areas was quite high. Twenty of twenty-two respondents (91%) indicated awareness of several historic sites in the area including the R.N.W.M.P; outpost often referred to as the Leavings. Seventeen of twenty-two respondents (77%) were aware of the locations of pre-historic sites including tipi-rings and cliff paintings.

In terms of importance, eleven of twenty-two (50%) indicated that these historical resources are important to them and their community.

Table 4. Project Benefits and Effects By Site

	SITE 1	SITE 2	SITE 3	SITE 4
No. of Landowners Interviewed	8	14	N/I	14
<u>Effects on Friends and neighbours *</u>				
Relocation	3	2	N/I	2
No defineable effect	4	5	N/I	5
Hard feelings	1	3	N/I	3
Effect on J. Streeter	0	4	N/I	4
<u>Methods of addressing effects *</u>				
Reasonable compensation	0	6	N/I	6
Alternate site selection	6	0	N/I	0
Irrigation licenses	2	2	N/I	2
<u>Greatest benefits to*</u>				
Municipalities	4	11	N/I	11
Irrigators	4	10	N/I	10
Land developers	0	4	N/I	4
<u>Effects on current Farming operation*</u>				
Plans on hold	4	6	N/I	6
Loss of homestead	5	2	2**	3
Loss of grazing	4	5	N/I	5
Loss of crops	2	4	N/I	4
Loss of Feed production	2	4	N/I	4
Loss of cow/calf	1	3	N/I	3
Loss of outbuildings	6	3	N/I	3
Maintenance of access	3	6	N/I	6

* - No. of respondents by reservoir site.

** - Assumed.

N/I - No Information.

Table 5. Construction Schedule and Reservoir Use

	SITE 1	SITE 2	SITE 3	SITE 4
No. of Landowners Interviewed	8	14	0	14
Construction Schedule*				
Begin as soon as possible	6	10	N/I	10
No preferences	1	2	N/I	1
Don't start at all	1	3	N/I	3
Reservoir Uses*				
(1) Control of adjacent land by:				
- Provincial Gov't	0	4	N/I	4
- Private owners	2	6	N/I	6
- Combination	6	3	N/I	3
(2) Recreational development:				
- For	6	10	N/I	10
- Against	2	4	N/I	4
(3) Benefits of recreational development:*				
- Improved facilities for locals	7	10	N/I	10
- Increased tourist spending	3	9	N/I	9
- Increased local employment	4	8	N/I	7
- New residents	2	7	N/I	7
- Increased tax base	2	6	N/I	6
(4) Problems of recreational development:*				
- Landowner/vistor conflicts	6	12	N/I	11
- Sewage disposal	5	10	N/I	10
- Increased traffic	6	8	N/I	8
- Water use conflicts	5	8	N/I	8
- Increased taxes	3	6	N/I	5
- Water quality	3	5	N/I	6
- Wildlife conflicts	3	4	N/I	4

* - No. of respondents by reservoir site.
N/I - No Information.

5.6 ENVIRONMENTAL ISSUES

5.6.1 Wildlife

Only five respondents (23%) indicated that birds were relatively abundant at any of the proposed reservoir sites. Hungarian partridge were reported on fourteen (64%) questionnaires, pheasants were reported on eleven (50%) and blue herons were reported on six (27%) questionnaires. White-tail deer were reported as abundant in twenty-one of twenty-two (95%) responses, coyotes in nineteen of twenty-two (86%) and beaver in eleven of twenty-two (50%). Fourteen responses (64%) indicated concern about the possibility of negative impact on local wildlife populations, and sixteen responses (73%) indicated that wildlife considerations were very important to themselves and the local community.

5.6.2 Fish

Eleven respondents (50%) indicated that fish resources were abundant in the project area, in Willow Creek. Pike (seven responses) and trout (seven responses) were species identified. Eleven respondents stated that the existing fisheries resource is very important to them and the community particularly for recreational values.

5.6.3 Vegetation

Eleven respondents (50%) indicated that existing berry patches, wild herbs and wood sources are important to them. Twelve respondents (55%) had observed heavy weed growth in Willow Creek particularly late in the summer of 1984, but only three had experienced problems in their farm operations caused by the weeds.

5.7 WATER QUALITY

Of twenty-one responses, only three landowners (14%) indicated that changes in water quality in Willow Creek had ever affected their operation. Fifteen respondents (71%) had seen Pine Coulee dry up consistently in the last seven summers and eleven (52%) noted that Willow Creek dried up in the summer of 1984. Thirteen respondents (59%) identified the existence of alkali patches in Pine Coulee.

5.8 ADDITIONAL COMMENTS

On this section of the questionnaire, the affected landowners were requested to offer responses involving two general matters. First, if there was some issue or topic that they wished to comment upon and that had not been covered in previous sections of the questionnaire, they were requested to do so in this section. Secondly, with guidance from the interviewer, they were to summarize and prioritize their feelings on overall matters of concern for them relative to the development of a reservoir on Willow Creek.

5.8.1 Additional Commentary

Few new points of consideration were identified by respondents. Broad general comments on the inefficiency of the bureaucracy were common but not directed at individual government personnel or procedures. When discussion of compensation programs was involved, repetitive concerns about the problems of compensation to landowners involved in the Oldman River Project were voiced. Generally, people were appreciative of the efforts made both to involve them in the selection process and to advise them of the status of the work being undertaken.

5.8.2 Summary of Questionnaires

In summarizing their feelings about the proposed reservoir sites, a series of repetitive issues became readily apparent and often there was a consensus position with minor variations accounting for individual situations.

5.8.2.1 Development of a Reservoir in the Willow Creek Basin. The strong consensus for the development of a new reservoir in the Willow Creek Basin is demonstrated by sixteen respondents who stated that they wanted the project to proceed. Four respondents stated that they were against any reservoir development and two respondents indicated no preference one way or the other. The identification of a preferred site is less clear, with Site #2 and Site #4 receiving the best support, but no clear majority was in favour of a specific site under consideration.

5.8.2.2 Compensation. In nineteen of the questionnaires, the topic of compensation was brought forward by the respondent as an issue. Eight respondents chose to identify fair compensation as an issue of great importance in their concerns and feelings about the project. Several landowners already had established in their own minds what they would find to be either acceptable compensation or methods of establishing such compensation.

5.8.2.3 Recreational Development. On the matter of recreational development there was a lack of consensus. In summarizing, seven respondents chose to support the concept of controlled recreational development on the reservoir, seven were against the concept and eight did not address it as a concern. There was an almost equal split in identifying who should control such development between the Provincial Government and the current private landowners.

5.8.3.4 Project Schedule. Ten respondents indicated that the project proponents should get on with the job as soon as possible. The lack of apparent progress, particularly in the decision making process, seemed to be a greater issue than the decision itself. The majority of all respondents indicated that the planning of the reservoir had affected their planning for their farm operation. Ten respondents stated that delays in making the decision on the location and timing of the project were already having serious and detrimental effects on their own planning.

5.8.2.5 Project Uses. An almost equal number of respondents indicated that they wanted reservoir water used primarily for either municipal uses (17) or for agricultural uses (18). Twenty-one of twenty-two (95%) respondents stated that recreational use of the reservoir was not to interfere with either municipal or agricultural uses.

6. INTERVIEWER'S COMMENTS

These comments are included as a part of this report in order to present information collected by the interviewer as observations, rather than as responses to the questionnaire. The comments are solely those of the interviewer:

- (a) Cooperation by those interviewed was excellent. At no time was the interviewer verbally harassed and generally was made to feel welcome in the privacy of the landowner's homes.
- (b) There was a high degree of awareness about the proposed project and its details. Respondents seldom required any prompting to answer questions and generally were prepared for the interview process.
- (c) There was an overriding sense of community togetherness in the responses of many of the affected landowners. Commonly, the interviewer had to seek clarification from individuals as to whether the response was personally motivated or done on behalf of the community.
- (d) Generally, there was a sense of impatience by most over waiting for a decision to be made. The slow pace of bureaucratic decision making seems to be more of an issue to some, than the decision itself.
- (e) Those directly involved in possible development of Site #1 seemed more polarized in their preference of site, with very little middle ground being apparent. Many of those involved with Site #2 or Site #4 almost seemed resigned to the selection of one of those sites.
- (f) Most of landowner's for Site #2 and Site #4 have been considering what would constitute reasonable compensation and in several instances had developed some very narrow boundaries of acceptable land values.
- (g) All of the landowners interviewed considered their presence along Willow Creek/Pine Coulee as a long term family farming operation. Several were semi-retired and were in the process of passing control to the next generation, or had already done so.
- (h) A majority of respondents felt more confident about the ability of the province to plan, develop and operate the reservoir than the M.D. of Willow Creek. I believe this is based largely upon concerns by the landowners that the M.D. is too heavily controlled by the towns of Claresholm and Stavely.
- (i) Almost all of the respondents expressed satisfaction in the manner and degree in which they had been kept informed about project progress.

APPENDIX 1

Summary of Data From
Completed Questionnaires

INTRODUCTION:

The following sections summarize the information collected during the interviews and is based upon the completed questionnaires. A total of 22 questionnaires was completed and utilized.

In certain instances the number of responses reported may either exceed or be less than 22. In the case of a greater number of responses than interviews, more than one response was given on several or all of the completed questionnaires. Where the number of responses is less than the number of interviews then several of the completed questionnaires had no response.

SECTION 1: FAMILY BACKGROUND

1. How many people are there in your family?

Under 6 years	0	16 responses
	1	5 responses
	>1	1 response
7 - 18 years	0	11 responses
	1	5 responses
	2	3 responses
	3	2 responses
	>3	1 responses
Adults	1	1 response
	2	10 responses
	3	5 responses
	4	2 responses
	>4	4 responses

2. How long have you lived in the area?

0 - 5 years	0 responses
5 - 10 years	1 response
10 - 25 years	2 responses
> 25 years	19 responses

3. How long have you been at the present location?

0 - 5 years	1 responses
5 - 10 years	2 responses
10 - 25 years	10 responses
> 25 years	9 responses

4. How many families depend on your farming/ranching operations (children, employees, etc.?)

1 family	12 responses
2 families	5 responses
3 families	3 responses
>3 families	1 response

5. Where does your family go for

a) social activities	
Claresholm	11 responses
Stavely	10 responses
Nanton	4 responses
b) school	
Claresholm	10 responses
Stavely	6 responses
Nanton	1 response
c) shopping	
- everyday needs (e.g., food)	
Claresholm	20 responses
Stavely	6 responses
Nanton	4 responses
Calgary	1 response
- repairs and major purchases	
Claresholm	18 responses
Calgary	5 responses
Nanton	5 responses
Lethbridge	4 responses
Calgary	1 response

6. Do other families live on your property?
Number of people? Number of adults?

Yes	3 responses of 1 Family
No	19 responses

SECTION 2: PROPOSED PROJECT CONCERNS

1. What do you believe is the major purpose of the Willow Creek Project? (we will provide some brief background information if you are not familiar with the project).

Most responses included more than one purpose

Irrigation	18 responses
Municipal water	17 responses
Recreation	8 responses
Water Storage	2 responses

2. Are you familiar with the four possible sites for water storage?
(if not, we will describe the three sites to you)

Yes	21 responses
No	1 response

3. Which of the sites would you most prefer?

Site 1	3 responses
Site 2	8 responses
Site 3	0 responses
Site 4	7 responses
No preference	3 responses

Why?

Site 1	on stream storage close to Claresholm	2 responses 1 response
Site 2	least valuable land no environmental concerns fewest people disrupted	1 response 2 responses 3 responses
Site 3	no preference shown	
Site 4	on stream storage better storage capacity fewest people affected	2 responses 1 response 2 responses

4. Which of the sites would you least prefer?

Site 1	7 responses
Site 2	4 responses
Site 3	8 responses
Site 4	1 response
No preference	2 responses

Why?

Site 1	loss of good land personal effect	1 response 5 responses
Site 2	personal effect off-stream	1 response 3 responses
Site 3	loss of good land environmental loss	3 responses 1 response
Site 4	no comments	

5. What do you think are the advantages and disadvantages of each of the three potential sites to the community?

a)	Site 1		
	Advantages:	on stream storage close to Claresholm	2 responses 4 responses

- | | | |
|----|--|---|
| | Disadvantages: lose good land
displaces people | 11 responses
8 responses |
| b) | Site 2
Advantages: least valuable land | 11 responses |
| | Disadvantages: too expensive | 1 response |
| c) | Site 3
Advantages: | none given |
| | Disadvantages: lose good land
disturbs J. Streeter | 2 responses
7 responses |
| d) | Site 4
Advantages on stream
larger | 2 responses
1 response |
| | Disadvantages: lose good land
lose Provincial Park
too expensive | 2 responses
1 response
1 response |
| 6. | How would a project at any of the four sites directly affect you? | |
| a) | Site 1
Lose land
Reliable water source | 5 responses
4 responses |
| b) | Site 2
Lose land | 14 responses |
| c) | Site 3
None cited | |
| d) | Site 4
Lose land | 14 responses |
| 7. | How would a project at any of the potential sites affect: | |
| a) | Relationships with friends and neighbours? | |
| | Have to relocate | 5 responses |
| | No effect | 9 responses |
| | Hard feelings | 4 responses |
| | Affect J. Streeter | 4 responses |
| b) | Daily activities, social activities and recreation? | |
| | No effect | 8 responses |
| | Access | 11 responses |
| 8. | What could be done to address these concerns: | |
| | Compensation | 6 responses |
| | Use other site | 6 responses |
| | Grant irrigation licence | 4 responses |

9. What could be done to reduce the effects and increase the benefits for you?
- | | |
|---------------------|-------------|
| Irrigation licences | 3 responses |
|---------------------|-------------|
10. Who do you think would benefit most from the project?
- | | |
|-----------------|--------------|
| Municipal Users | 15 responses |
| Irrigators | 14 responses |
| Developers | 4 responses |
11. Would this potential storage reservoir have any direct benefit for you? How?
- | | |
|----------------------|--------------|
| Yes | 10 responses |
| No | 5 responses |
| Irrigation potential | 7 responses |
12. Has discussion of a potential storage site directly affected your operation and future plans?
- | | |
|----------------------|--------------|
| Yes | 18 responses |
| No | 2 responses |
| All planning on hold | 10 responses |

SECTION 3: LOCAL CONCERNS

1. What areas do you farm? (see map)

All locations confirmed

Type of Operation:

Mixed	10
Cattle	8
Cow/calf	2
Hogs	2

Total Size of Operation:

varied from 160 acres to 9000+ acres

Deeded Land:

varied 21 with deeded land

Private Lease

4 reported private leases

Government Lease

9 reported government leases

2. Would the project affect your farming operation? How?

Crops	6 responses
Grazing	12 responses
Feed production	6 responses
Well water	4 responses
Other	none noted

3. Which of these changes would have the greatest impact on your farming operation?

Grazing	9 responses
Loss of cow/calf operation	4 responses
Other	10 responses

4. Would the project affect machinery access to portions of your farm?
Which portions? (see map)

Yes	9 responses
No	8 responses

5. Do you use any of the proposed project area for other purposes such as recreation?

Riding	5 responses
Camping	4 responses
Picnics	5 responses
Fishing	5 responses
Hiking	4 responses

6. Is your farmstead located at a potential dam site, weir, or reservoir?
If nearby, how many miles?

Various responses

7. Buildings: Which of the following would be affected by a potential storage project?

House	8 responses
Garage	8 responses
Barns	8 responses
Sheds	8 responses
Grainaries	7 responses

Improvements?

Fences	17 responses
Corrals	12 responses
Wells	10 responses
Developed springs	5 responses
Dugouts	11 responses
Lanes or roads	14 responses
Creek crossings	11 responses

8. Would you have to relocate if a potential reservoir project proceeded?
- | | |
|-----|-------------|
| Yes | 7 responses |
| No | 8 responses |
9. Would you hope to use water from the reservoir for domestic use, stockwatering, or irrigation?
- | | | |
|-----|---------------|--------------|
| Yes | Domestic use | 2 responses |
| | Stockwatering | 12 responses |
| | Irrigation | 12 responses |

SECTION 4: PROJECT START-UP AND RESERVOIR USE

1. When do you think construction should begin?
- | | |
|-------|--------------|
| Now | 16 responses |
| Never | 4 responses |
2. Would you prefer to have construction on-going year-round or during any specific season(s)?
- | | |
|---------------|--------------|
| No preference | 11 responses |
| Year round | 6 responses |
| Not in summer | 1 response |
3. If the reservoir is built, which uses are most important?
- | | |
|-----------------|--------------|
| Municipal Water | 9 responses |
| Irrigation | 14 responses |
| Recreation | 4 responses |
| Drought Control | 1 response |
4. What can be done to minimize the effects of the project on you?
- | | |
|---------------------|-------------|
| Fair compensation | 7 responses |
| Choose another site | 7 responses |
5. What type of recreational development do you feel would be acceptable near the reservoir?
- | | |
|---------------------|--------------|
| No development | 5 responses |
| Private cottages | 11 responses |
| Country residences | 11 responses |
| Public day-use | 12 responses |
| Public campgrounds | 11 responses |
| Private campgrounds | 10 responses |
| Boat launch | 14 responses |
| Marina | 9 responses |
| Other | 1 response |
| - Golf Course | 1 response |
| - Resort | 1 response |
| - Fishery | 1 response |

6. What scale of development would be acceptable to you?
- Few responses except for controlled development (i.e., 9 responses considered it absolutely necessary to put controls in places).
7. Do you feel that recreational development can occur without jeopardizing the function of the reservoir?
- | | |
|-------------|-------------|
| Yes | 9 responses |
| No | 5 responses |
| Conditional | 7 responses |
8. What do you feel are potential problems related to recreation development along the reservoirs?
- | | |
|--|--------------|
| No problems | 0 responses |
| Water quality | 8 responses |
| Access to shorelands | 13 responses |
| Landowner/visitor conflicts | 18 responses |
| Lack of suitable recreation sites on the reservoir | 5 responses |
| Increased traffic | 14 responses |
| Wildlife conflicts | 7 responses |
| Water use conflicts | 13 responses |
| Sewage disposal | 15 responses |
| Increased taxes | 9 responses |
9. What do you feel are potential benefits of recreational development along the reservoir?
- | | |
|--|--------------|
| Increased recreational benefits for local people | 17 responses |
| Increased tourist spending in the county | 12 responses |
| Adds to county tax base | 8 responses |
| Increased local employment | 12 responses |
| May attract new residents | 9 responses |
10. Who should control or own the land around a potential reservoir? Municipality 0 Provincial Government 4 Private Individuals 8 Combination 9

SECTION 5: HISTORICAL RESOURCES

1. Are you aware of any historic sites in the proposed reservoir areas?
- | | |
|-----|--------------|
| Yes | 20 responses |
| No | 2 responses |
2. Are you aware of any pre-historic sites in the proposed reservoir area?
- | | |
|-----|--------------|
| Yes | 17 responses |
| No | 5 responses |

3. How important are these historic resources to you?

Very important	11 responses
Not particularly	11 responses

To the local community?

As above

SECTION 6: FISH AND WILDLIFE

1. Are birds abundant in any of the proposed reservoir sites?

Yes	5 responses
No	17 responses

Species:

Blue Heron	6 responses
Hungarian Partridge	14 responses
Pheasants	11 responses
Golden Eagles	4 responses

2. Are wildlife such as deer or furbearers abundant in any of the proposed reservoir sites?

White-tail Deer	21 responses
Coyotes	19 responses
Beaver	11 responses
Fox	3 responses

3. How do you think wildlife will be affected by the proposed reservoir?
(positively or negatively)

Negatively	14 responses
Positively	6 responses

4. How important is wildlife to you? To the local community? (e.g., uses)

Yes, very important	16 responses
No	4 responses

Responses repeated to both questions

5. Has or does any one trap wildlife in the area? Who? What do they trap?

Yes	12 responses
No	8 responses

Species trapped included coyotes, beaver

6. Do you regularly observe hunters in the area? Where?
- | | |
|-----|--------------|
| Yes | 18 responses |
| No | 3 responses |
7. Are fish abundant in the proposed reservoir areas? What kind? Where? (see map)
When?
- | | |
|-------|--------------|
| Yes | 11 responses |
| No | 11 responses |
| Pike | 7 responses |
| Trout | 7 responses |
8. How important are these fish to you? To the local community? (e.g., uses)
- | | |
|----------------|--------------|
| Very important | 11 responses |
| Not important | 10 responses |
9. Do you regularly observe fishermen in the area? Where?
- | | |
|-----|--------------|
| Yes | 9 responses |
| No | 11 responses |
10. Are any of the plant communities in the proposed reservoir areas (other than grazing areas) important to you? (e.g., berry patches) Why? What time of year?
- | | |
|-----|-------------------------------------|
| Yes | 11 responses, all for berry patches |
| No | 11 responses |
11. Have you ever seen heavy weeds or algae in Willow Creek? Were there any years of seasons when this problem was particularly bad?
- | | |
|-----|--|
| Yes | 12 responses, all in late summer, 1984 |
| No | 9 responses |
- Do these weeds cause problems in your farm operation? (e.g., clogging of irrigation pumps)
- | | |
|-----|--------------|
| Yes | 3 responses |
| No | 14 responses |

SECTION 7: WATER RESOURCES

1. Have changes in water quality within Willow Creek or Pine Creek ever affected your farm operation?
- | | |
|-----|--------------|
| Yes | 3 responses |
| No | 18 responses |

2. Does Willow Creek or Pine Creek dry up during any period of the year? When? How regularly? Where?

Pine Coulee	Yes	15 responses
Willow Creek	Yes	11 responses
	No	6 responses

3. Are there presently any excessively wet or saline areas in the proposed reservoir areas? (see map)

Pine Coulee alkali	13 responses
--------------------	--------------

SECTION 8: ADDITIONAL COMMENTS

Additional comments included

For the project	16 responses
Against the project	4 responses
No particular preference	2 responses
Concerned about completion	8 responses
For recreation development	7 responses
Against recreational development	7 responses
Not a concern	8 responses
Start project now	10 responses
Water for municipal uses	17 responses
Water for agricultural uses	18 responses

APPENDIX 2

**Willow Creek Basin
Local Concerns Questionnaire**

WATER STORAGE IN THE WILLOW CREEK BASIN

LOCAL CONCERNS QUESTIONNAIRE

NAME: _____

LOCATION: _____

DATE: _____

Family Background

1. How many people are there in your family?
Under 6 years _____ 7-18 years _____ Adults _____
2. How long have you lived in the area? _____
3. How long have you been at the present location? _____
4. How many families depend on your farming/ranching operation (children, employees, etc.)? _____
5. Where does your family go for
 - a) social activities _____
 - b) school _____
 - c) shopping _____
 - everyday needs (e.g., food) _____
 - repairs and major purchases _____
6. Do other families live on your property? _____
Number of people _____ Number of adults _____

Proposed Project Concerns

1. What do you believe is the major purpose of the Willow Creek Project?
(we will provide some brief background information if you are now familiar with the project.)

2. Are you familiar with the three possible sites for water storage?
(if not, we will describe the three sites to you)

3. Which of the sites would you most prefer? Why?

4. Which of the sites would you least prefer? Why?

5. What do you think are the advantages and disadvantages of each of the three potential sites to the community?
a) Site 1 _____
b) Site 2 _____
c) Site 3 _____
6. How would a project at any of the three sites directly affect you?
a) Site 1 _____
b) Site 2 _____
c) Site 3 _____
7. How would a project at any of the potential sites affect:
a) Relationships with friends and neighbors? _____
b) Daily activities, social activities and recreation? _____
8. What could be done to address these concerns? _____
9. What could be done to reduce the effects and increase the benefits for you? _____
10. Who do you think would benefit most from the project? _____
11. Would this potential storage reservoir have any direct benefit for you?
How? _____
12. Has discussion of a potential storage site directly affected your operation and future plans? _____

Local Concerns

1. What areas do you farm? (see map)

Type of operation (e.g., grain, cattle)? _____

Total size of operation: _____

Deeded land _____ percentage of the operation (location)

Improved _____

Unimproved _____

Leased Land

Private Lease _____ percentage of the operation

Improved _____

Unimproved _____

Government Lease _____ percentage of the operation

Improved _____

Unimproved _____

2. Would the project affect your farming operation? How?

- crops _____ How much of total area? _____
- grazing _____ How much of total area? _____
- feed production _____ How much of total area? _____
- well water _____
- other _____

3. Which of these changes would have the greatest impact on your farming operation?

4. Would the project affect machinery access to portions of your farm? Which portions? (see map)

5. Do you use any of the proposed project area for other purposes such as recreation? _____

Activity

Affects from Reservoir

Affects to you

6. Is your farmstead located at a potential dam site, weir, or reservoir? _____ If nearby, how many miles? _____

7. Buildings: Which of the following would be affected by a potential storage project?

House
Garage
Barns
Sheds
Grainaries

Farmstead #1

Farmstead #2

Improvements:

Fences
Corrals
Wells

Developed springs _____

Dugouts _____

Lanes or roads _____

Creek crossings _____

Gardens & berry patches _____

8. Would you have to relocate if a potential reservoir project proceeded? _____

9. Would you hope to use water from the reservoir for domestic use, stockwatering, or irrigation? _____

Project Startup and Reservoir Use

1. When do you think construction should begin? _____

2. Would you prefer to have construction on-going year-round or during any specific season(s)? _____

3. If the reservoir is built, which uses are most important? _____

4. What can be done to minimize the effects of the project on you? _____

5. What type of recreational development do you feel would be acceptable near the reservoir?

No development _____ Private cottages _____ Country residents _____ Public day-use/picnic grounds _____ Public campground _____ Private campgrounds _____ Boat launch _____ Marina _____ Other: _____

6. What scale of development would be acceptable to you?

_____ None
_____ 1-2 isolated country residents
_____ 5-10 private cottages
_____ Day-use area for up to 50 families
_____ Campground with up to 100 campsites

7. Do you feel that recreational development can occur without jeopardizing the function of the reservoir? _____

8. What do you feel are potential problems related to recreation development along the reservoirs?

_____ No problems
_____ Water quality
_____ Access to shorelands
_____ Landowner/visitor conflicts
_____ Lack of suitable recreation sites on the reservoir

- ☐ Increased traffic
- ☐ Wildlife conflicts
- ☐ Water use conflicts (e.g., level fluctuations)
- ☐ Sewage disposal
- ☐ Increased taxes

9. What do you feel are potential benefits of recreational development along the reservoir?
- ☐ Increased recreational benefits for local people
 - ☐ Increased tourist spending in the county
 - ☐ Adds to county tax base
 - ☐ Increased local employment
 - ☐ May attract new residents
10. Who should control or own the land around a potential reservoir?
- Municipality ☐ Provincial Government ☐ Private Individuals ☐
- Combination ☐

Historical Resources

1. Are you aware of any historic sites in the proposed reservoir areas? (see map)
- e.g., - cabins ☐
- trails ☐
- homesteads ☐
- other ☐
2. Are you aware of any pre-historic sites in the proposed reservoir area? (see map)
- e.g., - tipi rings ☐
- spirit wheels ☐
- artifacts ☐
3. How important are these historic resources to you? To the local community?
- ☐

Fish and Wildlife

1. Are birds abundant in any of the proposed reservoir sites? ☐

Species	Location where abundant	Season
e.g., sharp-tailed grouse	dancing grounds	spring
☐	☐	☐
☐	☐	☐
☐	☐	☐

2. Are wildlife such as deer or furbearers abundant in any of the proposed reservoir sites? _____

Species	Location where abundant	Season
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

3. How do you think wildlife will be affected by the proposed reservoir? (positively or negatively) _____
4. How important is wildlife to you? To the local community? (e.g., uses) _____
5. Has or does any one trap wildlife in the area? Who? What do they trap? Where? _____
6. Do you regularly observe hunters in the area? Where? _____
7. Are fish abundant in the proposed reservoir areas? What kind? Where? (see map) When? _____
8. How important are these fish to you? To the local community? (e.g., uses) _____
9. Do you regularly observe fishermen in the area? Where? _____
10. Are any of the plant communities in the proposed reservoir areas (other than grazing areas) important to you? (e.g., berry patches) Why? What time of year? _____
11. Have you ever seen heavy weeds or algae in Willow Creek?
- Were there any years or seasons when this problem was particularly bad? _____
- Do these weeds cause problems in your farm operation? (e.g., clogging of irrigation pumps) _____

Water Resources

1. Have changes in water quality within Willow Creek or Pine Creek ever affected your farm operation?

2. Does Willow Creek or Pine Creek dry up during any period of the year? When? How regularly? Where?

3. Are there presently any excessively wet or saline areas in the proposed reservoir areas? (see map)

Additional Comments

